

P-2016
IDENTIFY AND DISCUSS MAJOR AIRCRAFT CONTROLS

CONDITIONS

You are a Mission Scanner trainee and must identify and describe the major aircraft control features.

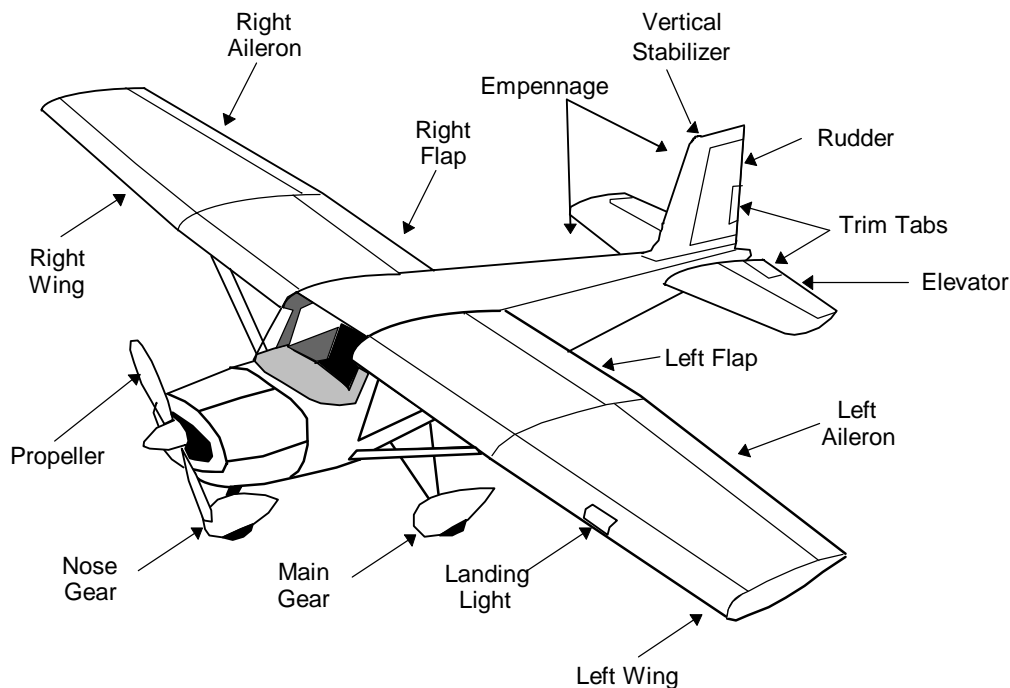
OBJECTIVES

Identify and discuss major aircraft controls.

TRAINING AND EVALUATION

Training Outline

1. As a Mission Scanner trainee, basic knowledge of how a typical CAP aircraft is controlled is helpful, particularly during emergencies.
2. The basic structure is the fuselage, and all other parts are attached to it. The primary source of lift is the wing, while other parts provide stability and control. The tail (empennage) consists of the horizontal stabilizer with its attached elevators and the vertical stabilizer with its attached rudder.



3. Aileron, elevator, flap and rudder movements control the aircraft in flight:
 - a. Ailerons are movable surfaces attached to the trailing edge of the wing, toward the wing tip from the flaps, that control roll (movement around the longitudinal axis). For example, if a pilot wants to turn to the right he turns the yoke to the right. This causes the right aileron to move up (creating a loss of lift on the right wing) and the left aileron to move down (creating lift on the left wing). The combined effects cause the aircraft to "roll" to the right.
 - b. The elevator is a movable surface attached to the trailing edge of the tail's horizontal stabilizer that controls pitch (movement of the nose up or down). For example, if a pilot wants to climb she pulls the yoke toward her. This causes the elevator to move up, creating a downward force on the tail and thus raising the nose.

- c. The flaps are electrically driven movable surfaces attached to the trailing edge of the wing, inboard of the ailerons. Deflection of the flaps (to a certain point) significantly increases lift. The pilot uses them during takeoff and landing.
- d. Rudders are movable surfaces attached to the trailing edge of the tail's vertical stabilizer that control yaw (side-to-side movement around the vertical axis). For example, if a pilot pushes the left rudder pedal the rudder swings to the left, creating a force that pushes the tail in the opposite direction (i.e., to the right). The nose of the aircraft then moves (yaws) to the left. [Note: the rudder pedals also move the aircraft nose wheel. When taxiing, to steer to the left the pilot would depress the left rudder pedal.]
- e. Although not a control surface, the throttle is a push rod with a black knob, located on the panel, that controls aircraft engine power. Pushing the knob in (towards the panel) increases power and pulling it out (towards you) decreases power.

Additional Information

More detailed information on this topic is available in Chapter 2 of the MART.

Evaluation Preparation

Setup: Provide the student access to an aircraft (or picture or model that shows aircraft control surfaces).

Brief Student: You are a Scanner trainee asked to identify and discuss the major aircraft control surfaces.

Evaluation

<u>Performance measures</u>	<u>Results</u>	
1. Demonstrate and discuss how the pilot turns (rolls) the aircraft left or right.	P	F
2. Demonstrate and discuss how the pilot makes the aircraft climb or dive.	P	F
3. Demonstrate and discuss how the pilot moves the aircraft's nose to the left or right.	P	F
4. Demonstrate and discuss how the pilot steers the aircraft to the left or right while taxiing.	P	F
5. Demonstrate and discuss how the pilot increases or decreases engine power.	P	F

Student must receive a pass on all performance measures to qualify in this task. If the individual fails any measure, show what was done wrong and how to do it correctly.